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Fractal approaches for visualizing huge hierarchies

- Koike, H. Yoshihara, H.

Dept. of Commun. &amp; Syst., Electro-Commun. Univ., Tokyo, Japan

*This paper appears in:* Visual Languages, 1993., Proceedings 1993 IEEE Sympo

On page(s): 55 - 60

24-27 Aug. 1993

Bergen, Norway

1993

ISBN: 0-8186-3970-9

Number of Pages: xii+406

References Cited: 24

INSPEC Accession Number: 4608005

**Abstract:**

This paper describes fractal approaches to the problems which associate with v huge hierarchies. The geometrical characteristic of a fractal, self-similarity, allo to visually interact with a huge tree in the same manner at every level of the tr fractal dimension, a measure of complexity, makes it possible to control the tot of displayed nodes. A prototype visualization system for UNIX directories is also

**Index Terms:**

[data structures](#) [database management systems](#) [fractals](#) [query languages](#) [Unix u](#) [interfaces](#) [visual languages](#) [visualisation](#) [huge hierarchies](#) [fractal approaches](#) [UN](#) [directories](#)

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Navigating hierarchies with structure-based brushes

- [Ying-Huey Fua](#) [Ward, M.O.](#) [Rundensteiner, E.A.](#)

Editor(s): Wills, G., Keim, D.

Dept. of Comput. Sci., Worcester Polytech. Inst., MA, USA

*This paper appears in:* Information Visualization, 1999. (Info Vis '99) Proceedin  
IEEE Symposium on

On page(s): 58 - 64, 146

24-29 Oct. 1999

San Francisco, CA, USA

1999

ISBN: 0-7695-0431-0

Number of Pages: ix+155

References Cited: 17

INSPEC Accession Number: 6423204

**Abstract:**

Interactive selection is a critical component in exploratory visualization, allowing isolate subsets of the displayed information for highlighting, deleting, analysis, focussed investigation. Brushing, a popular method for implementing the select process, has traditionally been performed in either screen space or data space. introduce the concept of a structure-based brush, which can be used to perform in hierarchically structured data sets. Our structure-based brush allows users to hierarchies by specifying focal extents and level-of-detail on a visual representa structure. Proximity-based coloring, which maps similar colors to data that are related within the structure, helps convey both structural relationships and ano describe the design and implementation of our structure-based brushing tool. W validate its usefulness using two distinct hierarchical visualization techniques, n hierarchical parallel coordinates and tree-maps.

**Index Terms:**

[user interfaces](#) [data visualisation](#) [data analysis](#) [structure-based brushes](#) [interac selection](#) [exploratory visualization](#) [subsets](#) [brushing](#) [hierarchically structured da](#) [visual representation](#) [level-of-detail](#) [proximity-based coloring](#) [structural relation](#) [anomalies](#) [hierarchical visualization techniques](#) [hierarchical parallel coordinates](#) [exploratory data analysis](#)

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## Review

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Presentation by tree transformation  
- Harrison, M.A. Maverick, V.  
Div. of Comput. Sci., California Univ., Berkeley, CA, USA  
*This paper appears in:* Compcon '97. Proceedings, IEEE  
On page(s): 68 - 73  
23-26 Feb. 1997  
San Jose, CA, USA  
1997  
ISBN: 0-8186-7804-6  
IEEE Catalog Number: 97CB36028  
Number of Pages: xvi+342  
References Cited: 23  
INSPEC Accession Number: 5552882

Structured documents are represented as trees. The layout or presentation of a document is also often modeled as a computation over a tree. But these trees are not generally the same. For instance, L<sup>A</sup>T<sub>E</sub>X converts a structured document to the TeX formatting hierarchy of boxes and glue. In other words, presentation is a mapping between trees. Casting it as a formal tree transformation offers both expressive style specifications and efficient implementation. In our structured document system, Ensemble, we have implemented a general framework for presentation by tree transformation. It consists of a core transformation engine; several distinct output languages or 'media'; and style files in a common language. To demonstrate its flexibility, we have built media for formatting programs, for presenting numerical data as tables, and for displaying the tree structure of any document. We have also defined four efficiency requirements for interactive presentation, and tuned the implementation to meet each one.

[tree data structures](#) [document handling](#) [tree transformation](#) [structured documents](#) [structured document system](#) [Ensemble](#) [formatting programs](#) [numerical data for hierarchy](#)

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